What is claimed is:

1. A compound semiconductor substrate fabrication method comprising:

preparing a base substrate;

forming a first buffer layer on the prepared base substrate;

forming a semiconductor layer on the first buffer layer; and

removing the base substrate.

2. The method of claim 1, between forming the semiconductor layer and removing the base substrate, further comprising forming a second buffer layer on the semiconductor layer.

3. The method of claim 1, wherein the base substrate is formed of a sapphire substrate or a silicon carbide (SiC) substrate.

4. The method of claim 2, wherein the second buffer layer has the same structure as the first buffer layer.

5. The method of claim 2, wherein the second buffer layer has a doping concentration profile symmetrical to the first buffer layer.

6. The method of claim 2, wherein the second buffer layer has a doping concentration profile asymmetrical to the first buffer layer.

7. The method of claim 1, 4, 5, or 6, wherein the first buffer layer is formed of multiple semiconductor material layers having different doping concentrations.

8. The method of claim 7, wherein forming the multiple semiconductor material layers comprises:

forming a doped semiconductor material layer on the base substrate; and

forming an undoped semiconductor material layer on the doped semiconductor material layer.

9. The method of claim 8, further comprising on the undoped

semiconductor material layer at least once alternately forming the doped semiconductor material layer and the undoped semiconductor material layer.

10. The method of claim 7, wherein forming the multiple semiconductor material layers comprises:

forming an undoped semiconductor material layer on the base substrate; and

forming a doped semiconductor material layer on the undoped semiconductor material layer.

11. The method of claim 10, further comprising on the doped semiconductor material layer at least once alternately forming the undoped semiconductor material layer and the doped semiconductor material layer.

12. The method of claim 1, 4, 5, or 6, wherein the first buffer layer is formed of a semiconductor material layer of a gradient doping concentration that increases upwards.

13. The method of claim 12, wherein forming the semiconductor material layer of the gradient doping concentration that increases upwards comprises:

forming an undoped semiconductor material layer on the base substrate; and

forming a doped semiconductor material layer of a gradient doping concentration that increases upwards, on the undoped semiconductor material layer.

14. The method of claim 13, wherein the doped semiconductor material layer of the gradient doping concentration that increases upwards comprises multiple semiconductor material layers deposited sequentially, starting with a semiconductor material layer of the lowest doping concentration.

15. The method of claim 2, wherein the second buffer layer is formed of multiple semiconductor material layers having different doping concentrations.

16. The method of claim 15, wherein forming the multiple semiconductor material layers comprises:

forming a doped semiconductor material layer on the semiconductor layer;

and

forming an undoped semiconductor material layer on the doped semiconductor material layer.

17. The method of claim 16, further comprising on the undoped semiconductor material layer at least once alternately forming the doped semiconductor material layer and the undoped semiconductor material layer.

18. The method of claim 15, wherein forming the multiple semiconductor material layers comprises:

forming an undoped semiconductor material layer on the semiconductor layer; and

forming a doped semiconductor material layer on the undoped semiconductor material layer.

19. The method of claim 18, further comprising on the doped semiconductor material layer at least once alternately forming the undoped semiconductor material layer and the doped semiconductor material layer.

20. The method of claim 2, wherein the second buffer layer is formed of a semiconductor material layer of a gradient doping concentration that increases upwards.

21. The method of claim 20, wherein forming the semiconductor material layer of the gradient doping concentration that increases upwards comprises:

forming an undoped semiconductor material layer on the semiconductor layer; and

forming a doped semiconductor material layer of a gradient doping concentration that increases upwards, on the undoped semiconductor material layer.

22. The method of claim 21, wherein the doped semiconductor material layer of the gradient doping concentration that increases upwards comprises multiple semiconductor material layers deposited sequentially, starting with a semiconductor material layer of the lowest doping concentration.

23. The method of claim 2, wherein the second buffer layer is formed of a semiconductor material layer of a gradient doping concentration that decreases upwards.

24. The method of claim 23, wherein forming the semiconductor material layer of the gradient doping concentration that decreases upwards comprises:

forming a doped semiconductor material layer of a gradient doping concentration that decreases upwards, on the semiconductor layer; and

forming a undoped semiconductor material layer on the doped semiconductor material layer.

25. The method of claim 24, wherein the doped semiconductor material layer of the gradient doping concentration that decreases upwards comprises multiple semiconductor material layers deposited sequentially, starting with a semiconductor material layer of the highest doping concentration.

26. The method of claim 1, 2, 15, 16, 18, 20, 23, or 24, wherein the semiconductor layer is a Group III-V compound semiconductor layer having conductivity.

27. The method of claim 26, wherein the Group III-V compound semiconductor layer is a silicon-doped GaN layer.